

can always be reached under the same subscriber number at various stations or within various communication networks. Furthermore, it is known from WO 99/27742 that a mobile radio can be located accurately with respect to its geographic position within a network on request. The position is indicated on a display of the mobile radio in a user-selectable format. In this arrangement, the user can activate the service of locating the mobile radio via the display of the mobile radio.

In addition to these primary services, the offer of performances or services (supplementary services), which are available and can be selected/deselected on a user-related basis, is increasing. Such supplementary facilities are known, for example, by the terms "blacklist" (list of subscribers whose call is, for example, unwanted and should be filtered out), "white list" (subscribers whose calls are wanted), "friends and family" (preferred subscribers, for example in connection with price discounts) or "hunting list" (sequential forwarding between a number of subscribers until one of the subscribers can be reached).

A user-related or subscriber-related adjustment (administration) of the supplementary services (for example, adding or deleting a subscriber identification number in one or from one of the services described above) via DTMF menus, known per se, is comparatively expensive because the subscriber demands various optional choices in voice-based dialogues and subsequent manual inputs. If, for example, the subscriber wishes to input a further call number into his/her "blacklist" from his/her subscriber station (for example a mobile telephone), he/she would first have to dial a certain service number. It is only this which allows the subscriber to input the respective call number manually, possibly after previous identification and authentication. This input is done as a long column of numbers/data which is repeated (announced) for confirmation. This procedure holds a large number of error sources and is comparatively time-consuming.

An object of the present invention consists in creating a method via which supplementary facilities in intelligent networks can be adjusted, turned off or modified (administration) relatively simply and in a subscriber-related manner.

## SUMMARY OF THE INVENTION

According to the present invention, this object is achieved by a method for administering supplementary services in telecommunication systems, in which a call from a calling subscriber station is routed to an intelligent node which runs supplementary services activated by the subscriber and possibly switches the call through to the called subscriber station and an operating menu which is transmitted to the called subscriber station, and which provides for the administration of the supplementary services with respect to the calling subscriber station is generated on the basis of the available supplementary services.

10 In the method according to the present invention, the respective associated intelligent node is addressed (triggered) in the case of an incoming call. This can be implemented by the intelligent node associated with the (called) subscriber identification being subsequently addressed when a call arrives at the destination exchange. Whether the node, also designated as "Service Control Point" (SCP), is responsible depends on various criteria and depends, for example, on the current location of the called subscriber station which is, in each case, determined during the routing through the network. The node, in turn, is addressed by a mobile switching center (MSC) allocated to the location of the called subscriber station; e.g., when the connection is set up by using a landline network.

20 In the intelligent node or in another suitable acceptance point (for example in the so-called service management point (SMP) which contains periodically updated mirrored data from the node SPC), the supplementary services currently available for the individual subscriber station and activated by the subscriber are called up and run. For example this run can have the result that the subscriber identification number of the calling subscriber station is contained in the "white list" and is thus switched through to the called subscriber station.

A key aspect of the present invention consists in that an operating menu which is transmitted to the called subscriber station is generated via the supplementary services on the basis of the data available; for example, from the intelligent node. The called subscriber can particularly advantageously administer the supplementary services with respect to the calling subscriber station or,

respectively, to its subscriber identification number via this (visual) operating menu. For example, the calling subscriber station can be received in a simple manner into the supplementary service "family and friends" by the (preferably indicated) subscriber identification number of the calling subscriber station being  
5 transferred, for example, by corresponding marking or clicking on the desired supplementary service in the menu ("family and friends"). In the same manner, a supplementary service also can be administered in order to, for example, remove a subscriber identification number from a supplementary service or to change it.

Another key aspect of the method according to the invention is, thus, that  
10 the supplementary services available for the called subscriber station are assembled and transmitted, together with a selection option of the called subscriber station, in dependence on the subscriber identification number of the calling subscriber station with respect to this calling number by a higher-level logic. As a result, the supplementary services can be administered advantageously before, after or during  
15 the conversation with the respective calling subscriber station without the subscriber being forced to carry out elaborate administration procedures. In particular, the elaborate calling of a corresponding service number followed by manual and/or voice-guided input of the administration requests is eliminated.

An advantageous embodiment of the present invention consists in that the  
20 operating menu is transmitted as a WAP (wireless application protocol) page.

The term "wireless application protocol" (WAP) designates an increasingly used technology in telecommunications via which mobile radio stations preferably equipped, for example, with a relatively large display, communicate with the Internet. A key aspect of the present invention consists in using this technology as  
25 a comfortable dialogue system between mobile radio station and intelligent node. The corresponding WAP page is built up by the intelligent node or an external logic (such as the "service manager point" (SMP) (SPC cluster) already mentioned).

A preferred embodiment of the method consists in that the operating menu  
30 is already transmitted during the signalling of the call to the called subscriber station.

In this case, the subscriber can use the call for administering his/her supplementary services at a particularly early time, possibly without even having to accept the call.

Additional features and advantages of the present invention are described in, and will be apparent from, the following Detailed Description of the Invention and the Figures.

### BRIEF DESCRIPTION OF THE FIGURES

Figure 1 diagrammatically shows the sequence of the method according to the present invention.

Figure 2 shows an example of an operating menu.

### DETAILED DESCRIPTION OF THE INVENTION

Figure 1 shows a situation in which a call R1 of a calling subscriber station AR passes, for example, from a landline network to a mobile switching center (MSC). Depending on the protocol used (e.g., ISUP), this can occur in the form of an "initial address message" (IAM) which contains the subscriber identification number of the calling subscriber station (ClgNo.: 0303861111) and of the called subscriber station (CldNo. +4917112345). Figure 1 shows data transmissions in dot-dashed arrows whereas voice transmissions are shown in continuous arrows. The mobile switching center MSC signals the incoming call in accordance with a standardized protocol INAP as so-called "initial detection point" (IDP) to an intelligent node SPC (service control point), informing it of the subscriber identification numbers involved. In this node, the voice link to the called subscriber station AG, which is a mobile telephone, is established in a ("traditional service") manner known per se. This link is shown as INAP operation "Connect" CON between the intelligent node SCP and the mobile switching center MSC and specifies the called subscriber identification number CldNo. The intelligent node SCP can run supplementary services ZD during the connection set-up, if available and activated by the subscriber. Such a supplementary service can be, for example, the "friends and family" or "blacklist" service described in detail initially. This presupposes that the subscriber identification number (030386111) of the calling subscriber station AR is entered in the corresponding list of the supplementary

service. If there is an entry in the "blacklist", the call is not switched through to the called subscriber station AG or, respectively, at least the connection set-up is not completed.

Taking into consideration the subscriber identification number of the calling subscriber station AR (i.e., if the respective supplementary service can be applied to the calling subscriber station), an operating menu BM or a menu page is generated on the basis of the available supplementary services ZDV; that is, the supplementary services which are provided or paid for the called subscriber station AG. Preferably, only the supplementary services which can be activated or administered at all for the current subscriber identification number of the calling subscriber station will be received in the menu.

To transmit the operating menu pages, the WAP (wireless application protocol) technology is used. In this technology, the operating menu pages are described as WML (wireless markup language) (WAP generation). WAP designates a user-friendly communication technology which is known per se and which has been developed in particular, for mobile radio telephones with Internet connection. In the telecommunication application, the WAP technology is also called WTA. The WAP page is transmitted via a WAP gateway WAPGW to the mobile switching center MSC and from there to the called subscriber station AG. This is preferably done already together with the paging message to the subscriber station AG. In fact, two traffic channels are established as already mentioned above; namely, a channel between the subscribers (voice channel) and a data channel between subscriber station AG and node SCP. These traffic channels are correlated and co-ordinated by the node SCP and the management SMP, respectively.

Figure 2 shows the representation of the WAP page on the display DP of the called subscriber station AG. The called subscriber (Mr. Mustermann) is able to recognize the subscriber identification number (call: 0303861111) of the calling subscriber station in the display DP and add the number, for example to the "blacklist" (add No. to service) via a simple menu (bar up/down) and corresponding operation of the key T (select). It is also correspondingly possible to